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1. (Amended) A method of forming a uni-chemo protected compound (UCP) comprising:

- (a) preparing a plurality of protecting group chains, each chain comprising one or more protecting groups; and
- (b) forming a UCP by attaching the chains to at least one template molecule, wherein at least two of the chains contain a different number of protecting groups.

10. A method of preparing target compounds comprising:

- B2
- a) removing one or more protecting groups from a uni-chemo protected compound (UCP) so as to form at least one exposed functional group of the UCP that is not attached to a protecting group, wherein the UCP comprises:
 - i) a template molecule comprising two or more functional groups; and
 - ii) protecting group chains attached to the two or more functional groups, the chains comprising one or more protecting groups, wherein
 - a') a first chain contains at least one protecting group; and
 - b') at least one other chain contains more protecting groups than the first chain; and
 - b) reacting the exposed functional group with a first target group;
 - c) consecutively repeating steps a) and b) to form the target compound.

11. The method of claim 10, wherein the protecting groups are linked together by a C-X-C bond,

where X is: NR, O, S, SiR₂, C≡C, O-SiR₂-O, PR, O-PO-O, O-PO₂-O, CONR, O-CO-O, NR-CO-O, NR-CO-NR, O-S(O₂), an orthoester, an acetal, a ketal, or NR-S(O₂); and R is hydrogen, an alkyl, an allyl, an alkene, an alkyne, an aryl, or an alkoxy group.

12. The method of claim 11, wherein the protecting groups are linked by an amide bond.

13. The method of claim 10, wherein the protecting group chains are oligomers of *N*-sec-butyl-glycine.

14. The method of claim 10, wherein the functional groups comprise an amine, amide, hydroxyl, thiol, carboxylate group, or a mixture thereof.

15. The method of claim 10, wherein the template molecule comprises an oligopeptide, oligosaccharide, or DNA molecule.

16. The method of claim 10, wherein at least one of the functional groups of the template molecule is attached to a resin.

17. The method of claim 10, wherein the template molecule comprises a solid substrate.

18. The method of claim 17, wherein the solid substrate comprises a glass.

19. The method of claim 17, wherein the solid substrate comprises a polymer comprising functional groups, and wherein the functional groups comprise hydroxyl, carboxylate, or amino groups, or a combination thereof.

Please add new claims 48-57 as follows:

48. (New) The method of claim 19, wherein the polymer comprises functionalized polyethylene, polypropylene, polystyrene, polycarbonate, polyacrylate, polyurethane, or Teflon®.

49. (New) The method of claim 15, wherein the template molecule is an oligopeptide comprising lysine.

50. (New) The method of claim 15, wherein the template molecule comprises one or more amino acids having one or more functional groups.

51. (New) The method of claim 50, wherein the template molecule comprises lysine, alanine, glycine, or a mixture thereof.
52. (New) The method of claim 51, wherein the template molecule comprises lysine and alanine.
53. (New) The method of claim 10, wherein the one or more protecting groups are removed using chemical, electrochemical, or photolytic reactions.
54. (New) The method of claim 10, wherein the protecting group chains are unsubstituted or substituted oligomers of 2-amino benzoic acid.
55. (New) The method of claim 10, wherein the protecting group chains are unsubstituted or substituted oligomers of (2-amino-phenyl)-acetic acid.
56. (New) The method of claim 10, wherein the protecting group chains are oligomers of *N*-(1-isopropyl-2-methyl-propylamino)acetic acid.
57. (New) The method of claim 10, wherein the protecting group chains are oligomers of *N*-(1-ethyl-propylamino acid).
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